



Z-RF Encode 001

User Guide and Installation Manual



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Safety Precautions

The presence of this symbol is to alert the installer and user to the presence of uninsulated dangerous voltages within the product's enclosure that may be of sufficient magnitude to produce a risk of electric shock.





TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK, DO NOT EXPOSE THIS DEVICE TO RAIN OR MOISTURE. DO NOT OPEN THE UNIT. REFER SERVICING TO QUALIFIED PERSONNEL ONLY.


-  DO NOT apply power to the unit until all connections have been made, all components have been installed and all wiring has been properly terminated.
-  DO NOT terminate, change or uninstall any wiring without first disconnecting the unit's power adapter from the device.
-  This device is supplied with the appropriately rated power supply. The use of any other power supply could cause damage and invalidate the manufacturer's warranty.
-  DO NOT connect the power cord to the device if the power cord is damaged.
-  DO NOT cut the power cord.
-  DO NOT plug the power cord into an AC outlet until all cables and connections to the device have been properly connected.
-  The device should be installed in an environment consistent with its operating temperature specifications. Placement next to heating devices and ducts is to be avoided as doing so may cause damage. The device should not be placed in areas of high humidity.
-  DO NOT cover any of the device's ventilation openings.
-  DO NOT cover or obstruct the device's fan or fan openings.
-  If the device has been in a cold environment allow it to warm to room temperature for at least 2 hours before connecting to an AC outlet.



Package Contents

This package contains:

-  Z-RF ENCODE 001 Encoder / Modulator
-  Power Adapter



Inspect the package before starting installation to ensure there is no damage and all supplied contents are present.

Section 1: Introduction

Introduction

The Z-RF Encode 001 is a cost-effective, single input encoder/modulator that provides a QAM output, making it ideal for any residential or commercial RF system in a variety of countries. The high-quality HD design allows for watching action packed movies and sports channels on any HDTV. The Z-RF Encode 001 Encoder/Modulator is a feature-rich, digital encoding platform that can be deployed in a variety of installations.

- /// QAM 64 /256
- /// High Resolution up to 1080i/1080p
- /// 3 VCN Modes
- /// GUI for easy setup and control
- /// HDMI, Component, Composite input
- /// MPEG-2 Output
- /// Supports Closed Captioning*
- /// EAS Supported*
- /// > +40dB MER

Z-RF Encode 001

Product Specifications

Name	ZBT0090214
General	Dimensions: 236mm x 145mm x 34mm Local Monitoring: LCD Operating Temperature: 0°C to +55°C Storage Temperature: -20°C to +70°C
Video / Audio Input	HDMI: 1.4v, Embedded PCM Component / Composite: RCA x1, Analog 3.5mm EAS: RCAX1, Analog 3.5mm, 5-12 VDC & Dry Contact Closure (Terminal Strip)
Video / Audio Encoding Profile	Video Codecs: MPEG-2 VBR Bitrate (Adjustable): J.83 Annex B // HD: 12.0 to 24.0Mbps // SD: 4.0 to 9.0Mbps Resolution Output: Same as Input, accepting as follows: // 1080p30 / 1080p25 // 1080i60 / 1080i50 // 720p60 / 720p50 // 576p / 480p // 576i / 480i Audio Codecs: MPEG1 Layer II / MPEG4 AAC / AC-3 Closed Captioning: EIA-608; 1x RCA (CC)
Output	Standard: J.83 Annex B Connector: 1x "F" Female Output Level: 95dB μ V Typical (With 20dB Range Manually Adjustable) Flatness Across Full Band: \pm 2 dB Typical MER: 38 dB Typical @ 663.0000 MHz Output Impedance: 75 ohm RF Output Return Loss: 10 dB Typical
Modulator STD	RF Mode: Normal / Inverted Channel Type: J.83B: STD / HRC / IRC Frequency Range (Under STD Mode): 177.000 MHz to 861.000 MHz (Channel 7 to Channel 135) Interleaver: I=128, J=1 Constellation (Output Bitrate, Max): 64-QAM (26.970Mbps) / 256-QAM (38.810Mbps) VCN: Auto (Major & Minor) / Manual (Major & Minor) / Manual (One Part)

Specifications

* Specifications subject to change without notification

Installation

System Installer must adhere to Article 820-40 of the NEC that provides guidelines for proper grounding and specifies that the cable ground shall be connected to the grounding system of the building, as close to the point of cable entry as possible.

Unpacking and Inspection

Each unit is shipped factory tested. Ensure all items are removed from the container prior to discarding any packing material.

Thoroughly inspect the unit for shipping damage with particular attention to connectors and controls. If there is any sign of damage to the unit or damaged or loose connectors contact your distributor immediately. Do not put the equipment into service if there is any indication of defect or damage.

Hardware Installations and Connections

It is highly recommended that quality cables and connectors be used for all video and audio source connections.

1. The unit comes with HDMI, Component & Composite inputs. Connect the desired cable, *not included*.
2. Use a quality 75Ω coaxial cable with “F” connectors from the unit’s RF Output.
3. Connect the included power adapter to the unit’s POWER plug.
4. Connect the power cord to an appropriately rated AC power outlet.

Device Programming and Setup:

Connecting to the GUI Interface:

Factory Default IP: 10.1.10.200

1. Connect an Ethernet cable to the Remote Setup Port of the ZPro-B2 and to your PC/Laptop.
2. Modify your PC/Laptop’s IP address to 192.168.1.100.
3. Enter ‘10.1.10.200’ into your web browser.
4. Make all required parameter changes.
5. Save all changes.

Section 2: Overview

Encoder Programming and Setup via GUI Interface:

After connecting the device to the Remote Setup port located on the rear of the device and connecting to a PC / Laptop.

Step 1: Enter Device's IP address in web browser.



QAM HD Digital Encoder

Overview

Encoder Setup

RF Output Setup

Network Setup

Administration

Device Name	Model Name	Serial Number	MAC Address	Firmware Version	Net Version
ZBAND-316768	Z-RF Encode 001	2117 316768	F8:0D:EA:B4:D5:60	20210412_0950	1.4.6

RF Output 1



RF Output	Modulation	Channel	Constellation	Output Bitrate	Channel Name	Video Source	Video Output	Audio Output	Video Bitrate	Status
1	J.83B	102 (663.0000 MHz)	256 QAM	38.810 Mbps	MY-DTV1	None	MPEG-2 VBR	AC-3	1,032 Mbps	Freerun

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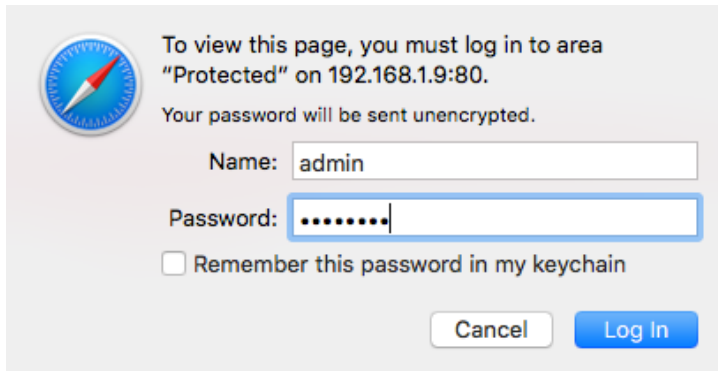
Step 2: Enter User Name/Password

Select Encoder Setup

After selecting the Encoder Setup Tab, the user will be prompted to enter the user name and password for device.

GUI Login Password:

Default User Name: admin
Default Password: Admin123



To view this page, you must log in to area "Protected" on 192.168.1.9:80.
Your password will be sent unencrypted.

Name:

Password:

Remember this password in my keychain

Note: To change the Password for the GUI, go to the Administration Tab.

Section 3: Encoder Setup

Step 3: Encoder Setup

QAM Encoder Setup



QAM HD Digital Encoder

Overview

Encoder Setup

RF Output Setup

Network Setup

Administration

Encoder Setup

This page allows the user to configure the device's encoder settings.

Encoder 1	
VCN (Channel Number)	102.1
VCN Mode	Auto(two-part)
Short Name	MY-DTV1
Long Name	ATSC-Digital-TV1
Source ID	101

Encoder Setup page allows the integrator to select and set:

Video Input	Auto detect
HD BitRate(Mbps)	24
SD BitRate(Mbps)	4
Program Number	1
Video Output	MPEG-2 VBR
HDCP (Test Mode)	<input type="checkbox"/>
Closed Caption	<input checked="" type="checkbox"/>
Audio Input	Auto detect
Audio Output	AC-3

Select and set the specific parameters settings as required for your application.

VCN (Channel Number):
Enter VCN CHANNEL NUMBER: Enter the VCN Channel Number as required.
Factory Default: 102.1

The Z-RF ENCODE 001 offers 3 VCN (Virtual Channel Number) Modes.

1- Select and set VCN Mode.

VCN Mode Options:
Enter VCN Mode: Enter the VCN Mode as required.

✓ Auto(two-part)
Manual(one-part)
Manual(two-part)

Factory Default: Auto (two-part)

VCN Mode (Auto two-part)-VCN Auto 2-part- will force the VCN channels to be based on the CH/freq. selected on the RF Output Setup page of the device.

Examples:

CH	VCN Channel
57	57.1
101	101.1
134	134.1

- This mode automatically sets the VCN based on the RF Cha/freq. set in the RF Output Setup section.

VCN Mode (Manual two-part)- VCN Manual 2-part- will allow the installer to control VCN channels regardless of the CH/freq. selected on the Output Setup page of the device.

Examples:

CH	VCN Channel
57	55.1
101	101.2
134	134.2

Selecting this option requires the user to enter a VCN channel #.

VCN (Channel Number):
Enter VCN CHANNEL NUMBER: Enter the VCN Channel Number as required.
Factory Default: 102.1 (located in the RF Output Section)

VCN Mode (Manual one-part)-VCN Manual 1-part- will allow the installer to control VCN channel regardless of the CH/freq. selected on the Output Setup page of the device.

Examples:

CH	VCN Channel
57	2
101	105
134	133

Selecting this option requires the user to enter a VCN channel #.

VCN (Channel Number):

Enter VCN CHANNEL NUMBER: Enter the VCN Channel Number as required.

Factory Default: 102 (located in the RF Output Section)

Short Name: Set Short Name.

Short Name will appear on the TV.

Factory Default: DTV-1

Long Name: Enter Long Short Name.

Factory Default: ATSC-DTV1

Source ID: Set as required

Factory Default: 101.

Video Input: Select and Set Video Input Source.

Options: Auto Detect (Factory Default, HDMI, Component, Composite)

HD Bitrate (Mbps): Set HD Bitrate

HD range (Mbps): 12 ~24 Mbps

Factory Default: 18 Mbps

SD Bitrate (Mbps): Set SD Bitrate

SD range (Mbps): 1 ~ 9 Mbps

Factory Default: 4 Mbps

Program Number: Program Number

Factory Default: 101

HDCP (Test Mode): Enable / Disable

Factory Default: Disabled

Video Output: Factor Set: MPEG-2 VBR

Closed Caption: Enable /Disable Closed Captioning

To enable Closed Captioning for the device, check the check box to enable the Closed Captioning function.

Application Note:

Closed Captioning requires an active Closed Captioning source from the input.

If the Source input does not supply the encoder with the Closed Captioning content no Closed Captioning will be displayed.

- When using a Component Input Source, the Composite Input must be used to supply the CC source content.

Audio Input:

Audio Input Options: Auto detect, Analog

Audio Output: Select Audio Output Type

Use the Drop Down tool to Select the Audio Format required.

✓ MPEG1 Layer2 (MP2)

MPEG4 AAC

Factory Default: MPEG1 Layer II

SAVE AND CONFIRM ALL CHANGES MADE ON THE ENCODER PAGE

Save and Confirm

Cancel

All Changes made will be show in the applet window (see below example)

Apply changes

×

CAUTION:Incorrect settings may cause the device to lose network connectivity.
Recovery options will be provided on the next page.

Apply the following changes to this device?

- Encoder 1, Long Name: ATSC-Digital-TV1 => ATSC-Digital-TV2
- Encoder 1, Short Name: MY-DTV1 => MY-DTV2
- Encoder 1, VCN Mode: Auto(two-part) => Manual(one-part)
- Encoder 1, SD BitRate(Mbps): 4 => 8
- Encoder 1, Audio Output: MPEG1 Layer2 (MP2) => MPEG4 AAC
- Encoder 1, HD BitRate(Mbps): 24 => 15.5
- Encoder 1, VCN (Channel Number): 102.1 => 102

Close

Submit

Select 'Submit'

Note: To reset all changes made or saved go to the Administration Page and select 'Reset to Default'.

*Leaving the encoder page without saving changes will cause the previous settings to be used.

- If the unit is outputting video to the system there will be a brief delay in the video while the parameters are saved.

Section 4: RF Output Setup

Step 3: RF Output Setup

1. Select the 'RF Output Setup' tab from the top menu.
2. Modify all parameters as needed.

Use the Output Setup page to set the RF output type, RF Output CH/frequency, and Constellation.

1. Modify and set the required parameters for your installation
TSID: (Factory Default is 1)
* If installing multiple units in the same system – ensure each device has a unique TSID.
2. Select and set the RF Type.
RF: Normal, Inverted (Factory Default is Normal)
3. Select and set Channel Type.
Channel Type: J.83B STD, J.83B HRC, J.83B IRC (Factory Default is J.83B STD)
4. Select and set the required CH/Freq.
CH/Freq QAM.: Factory Default is 102 (CH range 7-135, Freq. range: 177~ 861MHz)
5. Select and set the required Constellation.
Constellation (QAM TYPE): 256 QAM, 64 QAM (Factory Default is 256)

Save and Confirm all changes settings on RF Output Setup page.

Application Note:

When installing more than 1 device into a system, each device must have a unique RF TS_ID.

We highly recommend you save your encoder configuration files.
See Administration tab for how to backup device settings.

Note: To reset all changes made or saved go to the Administration Page and select 'Reset to Default'.
*Leaving the RF Output Setup page without saving changes will cause the previous settings to be used.
- If the unit is outputting video to the system

Section 5: Network Configuration

Network Setup Tab



QAM HD Digital Encoder

Overview

Encoder Setup

RF Output Setup

Network Setup

Administration

Network Setup

This page allows the user to configure the device's network settings.

Hostname	<input type="text" value="ZBAND-316768"/>
MAC Address	<input type="text" value="F8:0D:EA:B4:D5:60"/>
DHCP	<input type="checkbox"/>
IP Address	<input type="text" value="10.1.10.200"/>
Subnet Mask	<input type="text" value="255.255.255.0"/>
Default Gateway	<input type="text" value="0.0.0.0"/>
	<input type="button" value="Save and Confirm"/> <input type="button" value="Reset"/>

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Management IP Setup:

Use the Network Setup to configure the device's Management Port's IP address (GUI address) of the device, Subnet Mask, Gateway, Enable/Disable DHCP, and set Host Name.

Factory Default GUI IP is 10.1.10.200

Save and Confirm: Once all parameters are set remember to Save and Confirm all changes.

Note: It is highly recommended that the GUI / Remote Setup IP address is recorded locally for access to the GUI in the field.

Section 6: Administration

Administration

REBOOT

RESET TO DEFAULT

Backup / Restore

Password



Download current configuration settings to a local file.

BACKUP



Upload a pre-saved configuration to the device.

BROWSE...

UPLOAD

Reboot:

Use the Reboot command button to reboot the device.

Note: Any unsaved changes will be lost.

Reset to Default:

Use the Reset to Default button to reset all parameters to original factory settings.

Saving your configuration files

We highly recommend you save your configuration files. Simply Click the “Backup” button and the config files will be saved to your computer.

Backup:

We highly recommend saving your device’s setting.

1. Select Administration tab.
2. Select backup from the menu.
3. Locate and name file for future use.

Restore/Upload saved file configurations:

1. Select Administration tab.
2. Select “Choose file” menu.
3. Locate the required file to be imported.
4. Select “Upload” to import the selected file into the device.
5. Remember to save and backup any and all changes.

Change Password:

Use the Change Password section to change or modify the device's password as desired.

Administration

REBOOT

RESET TO DEFAULT

Backup / Restore

Password

Change Password

CAUTION:The new password must contain:

- 6-8 characters
- At least one digit
- At least one uppercase character
- At least one lowercase character

Old Password:

New Password:

Confirm Password:

Save and Confirm

Save and Confirm new password.

EAS Support

EAS

This is equipped with EAS terminals / connections and CVBS (Composite Video Input) and L/R audio input connections on the rear panel of the device.

If applicable, connect your EAS (Alert Device System) outputs to the Encoder. If the encoder receives the proper Event signal from your EAS device, the normal input audio/video program will be replaced by the audio and video from the EAS system device. Once the encoder has received the proper signal from your EAS device the normal input video and audio will return to a normal operating mode.

****THIS DEVICE IS NOT AN EAS RECEIVER****

Note: It is the responsibility of the Installer/User to properly connect, verify, and test the EAS functionality of this device with the EAS receiver.

Note: It is the responsibility of the Installer/User to properly perform the required EAS tests as required by the FCC or your specific Government Agency.

If the EAS functions on this device fail for any reason it is the responsibility of the Installer/User to replace this device as required by the FCC or your specific Government Agency.

Front Panel Control


The Z-RF ENCODE 001 can be programmed using the front panel LCD to configure the unit as desired.

Once the unit has powered up it will go through an internal booting process the unit is ready for programming or operation. and display Bit rate information in the LCD display when ready.

 Press OK

LCD Password

– Press the OK button to enter the 4-digit password. Use the Scroll Up/Down button to search and select individual numbers for the password. Press the OK button for each number to enter the password.

 Password?: Default password is 0000.



Password=?
***1

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